Docket No. SA-532

Exhibit No. 2-D

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

Operations/Human Performance Group Chairmen
Interview Summary – Airbus VP Flight Operations Support and Services

(7 Pages)

Attachment 3

to Operations / Human Performance Group Factual Report

DCA09MA026

INTERVIEW OF AIRBUS VP FLIGHT OPERATIONS SUPPORT AND SERVICES

Interview: Marc Parisis – VP Flight Operations Support and Services, Airbus
Date: February 19, 2009
Time: 0805 EDT
Location: Phone interview

Present were: David Helson, Katherine Wilson - National Transportation Safety Board (NTSB); Lori Cline – US Airways; Larry Rooney – US Airline Pilots Association (USAPA), Terry Lutz - Airbus

Mr. Parisis was represented by Mr. Yves Lemelle, Head of Single Aisle/Long Range Operational Standards - Airbus.

In the interview, Mr. Parisis stated the following information:

He was 45 years old and the VP of Flight Operations Support and Services for Airbus based in Toulouse, France. He had previously been the Director of Flight Crew Training at Airbus. He was hired by Airbus in 2002 and previously had worked for the French Civil Aviation Authority. He was qualified on the Airbus A320, A330, A340, and A380. He said he was a pilot instructor and Check Airman and had logged about 8,000 hours total time. He had logged about 600 hours in the A320 series airplane and almost 1,000 hours in Airbus airplanes.

Mr. Parisis said when he was the Director of Flight Crew Training he was in charge of training course development and execution of flight crew training for all Airbus fleets at the Airbus training center in Toulouse and was also responsible for the training conducted at Airbus Training centers in Miami and Beijing.

He stated that the Airbus A320 transition pilot training program consisted of a 25 day course. He said Airbus also had a course specifically tailored to crews transitioning from another fly-by-wire airplane such as the A330. There were 15 days of ground school training that included some time in MFTD, followed by 7 four hour sessions in a full flight simulator (FFS), a four hour LOFT session and a certification checkride. There was also one additional simulator session devoted to low visibility training. The training syllabus was the same for the centers in Toulouse, Beijing, and Miami. The only variance was the approach charts used and the airports used in the simulation sessions. He said in Toulouse they used a European airport, in Beijing an Asian airport, and in Miami a North American airport.

Mr. Parisis said engine failure training was conducted in the MFTD and in the full flight simulator. The trainees would go through the steps in the procedure and practice in the MFTD and would also complete engine failure scenarios in the simulator. He said a dual engine failure scenario was introduced in FFS session #5.

The dual engine failure scenario was included in the syllabus and was introduced at Flight Level (FL) 350 and the scenario was completed after one engine relight was accomplished using APU (Auxiliary Power Unit) bleed air. There was also an instructor

guide that described for instructors how to introduce and conduct the scenario and to set the crew up for an APU assisted relight below FL200.

The instructor guide listed objectives that required the trainee to review procedures in the FCOM (Flight Crew Operating Manual), the FCTM (Flight Crew Training Manual), and the QRH (Quick Reference Handbook). During the briefing before the simulator session, there was discussion about the dual engine failure scenario and the instructor and trainees went through the procedure in the QRH. In the simulator, the trainees went through the procedure which initially called for a windmill start. The simulator was programmed to not allow the windmill start which led the crew to do an APU assisted relight once they were below 20,000 feet. Once the crew restarted an engine, the scenario was completed.

Mr. Parisis said there was not a scenario in the syllabus that called for a dual engine failure at a lower altitude. He could not recall if there had been any discussion in the past about adding a dual engine failure scenario at a lower altitude.

When asked how much altitude was used to complete the scenario, he said he had not received any remarks from instructors regarding the amount of altitude required to complete the scenario. He said the scenario was not limited by altitude but was considered successfully completed when one engine was restarted. Mr. Parisis said he was not a SFI (Synthetic Flight Instructor) and had not conducted that scenario or observed it being taught. He said before the procedures are implemented in the training syllabus, they are checked by instructor pilots to make sure the exercises were feasible.

He said there were no scenarios in flight crew training that required ditching in the simulator. He said during the ground school phase of training the function and use of the ditching push button was covered on one slide during systems training.

Mr. Parisis said the Airbus training program was focused on the FCL (Flight Crew Licensing) part of a crewmembers training. The operations part of the crew training was conducted by and was the responsibility of the airlines and was based upon the regulations the airline was operating under.

Mr. Parisis said Crew Resource Management (CRM) was a part of all Airbus training. He said CRM was introduced in the MFTD tutorials, which provided information on CRM related topics such as good communication skills and leadership. He said CRM was not taught as a separate class but was included as a part of all training.

Regarding task sharing roles, Airbus taught generally that during an abnormal event, the pilot flying (PF) would remain the pilot flying unless the captain wanted to change the roles. If the controls were transferred, the procedure was to call “I have control” and the other pilot would state “you have control”. The pilot flying was in charge of flying the airplane which was the number one priority and communicating with Air Traffic Control (ATC). The pilot not flying (PNF) was in charge of carrying out the required abnormal procedure. Some of the items were read and do items and some required a confirmation

from the PF for items like guarded switches or if action was required with the thrust levers. He said in Airbus' task sharing, the thrust levers were the responsibility of the PF.

Trainees were first introduced to abnormal procedures on day 11 in MFTD session 6. On that day, the trainees were given a presentation regarding task sharing roles and the information was contained in the FCOM. The presentation described certain roles such as first pilot reset the master caution master warning and announced the failure, PF flew the airplane, PNF would confirm the ECAM using systems display, PF called for ECAM actions, and this was followed by the read and do procedure.

Mr. Parisis said that in the case of a dual engine failure, the crew had no choice; the left seat pilot must fly the airplane because they would be on battery power only initially and only the left side Primary Flight Display (PFD) would be working. He said the PNF accomplished the read and do procedures and received confirmation from the PF for guarded switches. He said the thrust levers belonged to the PF and when the PNF reached this item in the checklist, he would request that action be carried out by the PF.

Mr. Parisis said birdstrike hazards were not addressed during training but the topic was covered in the Flight Operations Briefing Note (FOBN) "Bird Strike Threat Awareness" on Airbus.com, which was available to all operators. He said there was also a FOBN regarding engine malfunction. He said they included birdstrike discussion in the before takeoff SOP (Standard Operating Procedures) where the exterior lights can be used to help minimize birdstrike hazards. He said in the simulator they introduced engine failure / engine damage scenarios but did not specifically identify them as being caused by birdstrikes.

Mr. Parisis said Airbus offers support to answer questions from operators and to assist them with issues regarding their training program and their flight operations. Airbus held a 3 day flight crew training symposium every two years that all operators attended and they had flight instructor seminars with personnel at the airlines. In addition, he said Airbus was in direct contact with the operators through email to answer questions about training.

Mr. Parisis could not recall any specific request from an operator to change the training program but he had received input from operators at the symposium.

He said they had a systematic process to collect feedback from trainees at the completion of training. Each trainee could provide feedback on specific parts of the training program and there was also an area that allowed free text input of any issues they wished to address.

Regarding birdstrike training, Mr. Parisis said the engine damage scenarios were not specifically identified as being caused by a birdstrike; they were introduced prior to V_1 to induce a rejected takeoff, at V_1, and also at a slightly higher altitude above the ground after takeoff. He said they did have scenarios in training that included an engine failure at low altitude.

He said the simulator malfunction library included a selection for engine stall. He said an engine stall was introduced in FFS session 5, which was dedicated to engine failure training. One scenario included a takeoff at maximum weight where an engine stall was introduced at V_1. Another scenario introduced the malfunction at V_2 slightly above the ground after takeoff.

Mr. Parisis said there was a change to the Engine Dual Failure checklist procedure in 2004. He said as part of the Continuous Improvement Process, Airbus decided to improve the checklist by merging different procedures that were in different locations into one checklist. One improvement was to differentiate between a fuel remaining and no fuel remaining scenario. The procedure was amended in 2004 and effective in 2005.

Mr. Parisis said that PF verses PNF was a captain decision. The FCOM discussed the roles of the crew but did not preclude the captain from making a decision to transfer controls.

Regarding the ECAM and QRH procedures, he said the Engine Dual Failure was an ECAM exception and Airbus recommended during training that the flight crew go directly to the QRH procedure.

Mr. Parisis said there was a central department in Toulouse, separate from the Toulouse training center that was in charge of development of the training curriculum for the training centers in Toulouse, Beijing, and Miami. He said they had a formal process to evaluate the feedback for the training centers. Airbus used a contractor to compile the information collected to review and evaluate the program by the manager. He said they would then have meetings to review and take action on trainee recommendations. He said this was done after the TSI (trainee ??? index).

BREAK 0905
RESUME 0915

Mr. Parisis said he was the Head of Flight Operations Support and Services. In that capacity, he was in charge of, and accountable for all flight operations documents including the FCOM, FCTM, QRH (Quick Reference handbook), AFM (Airplane Flight Manual), MMEL (Master Minimum Equipment List), and performance issues and safety announcements for airlines. He said his department was closely linked to the training department.

He said Airbus had a “Continuous Improvement Process”. They worked closely with the training department, had direct relations with the airlines and received several hundred questions from operators every month. They received input from the flight crew training symposium, in-service difficulty reports and event reports. He said based on information from these sources, they would evaluate whether or not a change was needed to existing procedures.

The first step in implementing a change was to draft a proposal for the training department to review and this sometimes included the use of the flight simulator. There was a formal process where the proposal was made to an operational evaluation panel consisting of personnel from the training department, flight department and flight safety personnel within Airbus. This process also included a formal review with the test pilot group. An evaluation group was under his responsibility and was in charge of reviewing incoming data to evaluate the need for a change. He said if a change was approved, he would be in charge of the procedure.

In the case of an abnormal procedure, the procedure would be evaluated in the simulator by a training captain during the first stage of the proposal. Mr. Parisis had 10 pilots in his department and 4 of them, including Mr. Parisis, were qualified as test pilots who would conduct the simulator sessions. He said that in the final stage of the proposal, they would return to the simulator to determine that all steps in the procedure were written correctly before implementing the change. During the process, they would communicate with the operators to discuss the change and the reason for the change.

The timeline to complete the process was dependent upon the complexity of the procedure. He said, for example, when they made the last change to the Engine Dual Failure procedure, the process took several months to complete.

Mr. Parisis said they would send details of the new procedures to the operators, publish the information on Airbus World, and communicate in meetings, conferences, and in the manual revision the reason for the change as well as a description of the change. He said they would also sometimes make a presentation. In the case of the amendment to the Engine Dual failure procedure, Airbus made a 30 minute presentation in the Operational Liaison Meetings (OLM) in 2004.

He said after operators reviewed the procedures they would present questions or comments that would be reviewed. The new procedures would be used in training and they received immediate feedback from the training department about the efficiency of the procedures.

Mr. Parisis said he did not have direct access to the airlines' documentation. He said they conducted 30-40 visits to the airlines each year. During the visits they discussed with management, the documentation the airline used and how they incorporated the Airbus manuals in their programs. He said he had no authority to make sure the operators used Airbus issued materials in their manuals. He said that was up to the airline and the regulatory authority that approved the airlines' manuals.

Mr. Parisis said there was a change to the Engine Dual Failure procedure in 2005. The main change was to institute two parallel steps; one for fuel remaining to attempt a relight, and the other for no fuel remaining where there was no relight to be attempted. In addition, the change combined procedures from other checklists so the engine Dual Failure checklist was a stay in checklist that could be used by the crew to complete the flight without using other checklist procedures.

He said the change was instigated by the Continuous Improvement Process and they had identified from reviewing accident reports that crewmembers found that it was not easy jumping from one procedure to another so they decided to combine the checklists into one procedure.

He said during the time he had been there, he did not recall that they had specifically addressed the issue of dual engine failure at very low altitudes; he said they looked at the highest probability in time of exposure that a dual engine failure would occur.

In the Engine Dual Failure Procedure, a windmill restart attempt was acceptable on both engines at the same time since both had the same amount of available airflow. While conducting an APU assisted start, there was only one bleed air source available and in order to maximize the potential, only one engine start was attempted at a time so as not to share the bleed air source. He said there was a presentation in the training course to explain to trainees, the reason why they could attempt both engine restart while windmilling and only one engine at a time while using APU bleed air.

When asked about the use of the master switches during an APU assisted start, he said only one engine master should be selected on at a time. He said both master switches should be off and only one should be selected to on. If the start was unsuccessful, the master switch should be selected off and the other one could then be selected to the on position to attempt a relight of the other engine.

Mr. Parisis said the Engine Dual Failure procedure called for the use of flaps in CONFIG 3 for landing or ditching. The procedure assumed that no engines were restarted. In that case, the RAT (Ram Air Turbine) would be powered and only the blue hydraulic system would be operating; only slats would be available. When the flap lever was selected to CONFIG 3, only slats extended.

The Ditching procedure in the QRH assumed that at least one engine was operating. In that case, the procedure called for the use of maximum available flaps in order to obtain the minimum speed at impact. He said for a ditching scenario Airbus recommended the use of as much flaps and slats as were available in this situation.

Mr. Parisis said when the change was made to the Engine Dual Failure procedure; the procedure integrated the Ditching and Landing Gear Gravity Extension checklists as well as the speed table.

Mr. Parisis was asked if there had been any discussion regarding low altitude dual engine failure procedures since the accident occurred. He said there had been some discussion, they were reviewing their documentation but were awaiting details from the investigation. He said they always considered information from accident and incident reports.

He said the change in 2005 was driven by an A330 accident in the Azores in which an airplane had a dual engine failure with a no fuel remaining situation.

Mr. Parisis was not aware of any study regarding additional hydraulic power as a result of windmilling engines and how the availability of additional flaps would affect the body angle for ditching. He said he did not know if the ditching study by the technical engineering department took into consideration all of the different flap positions.

He said the objective in the ditching procedure was to touch down with minimum vertical speed; the attitude that corresponded to that was 11 degrees and was based on survivability factors and structural integrity. He said the engineering department looked at optimum ditching angle and 11 degrees was determined from that.

Mr. Parisis said he had not tried to recreate the accident scenario in the simulator and was not aware if others on the Flight Safety team at Airbus had done so.

He was asked what problems might be presented if the ditching push button was moved to earlier in the procedure. He said in the case of the Ditching procedure where one or both engines were still powered, the airplane would have pressurization and airflow systems working and to be sure not to have a high ΔP (pressure differential) at impact, the target would be set to the pressurization computer so the landing elevation would be close to that of the water. He said the ditching push button closed all of the valves and that you did not want to do that to much before impact, that was why it was done at 2,000 feet on the checklist.

Mr. Parisis was asked if there had been any discussion of recovering the use of trailing edge devices through the electronic hydraulic pumps if the APU was operating. He said Airbus did not recommend using the electric pumps in this situation. He was not sure if the electric pumps would be sufficient to operate the flaps and thought it might have an adverse effect on other systems.

Mr. Parisis was asked if during the development of the Engine Dual Failure procedure there was any discussion of a crew going directly to the ditch procedure if they were at a low altitude or if they were having difficulty getting the engines restarted. He said if a crew did not have time to complete the checklist to restart the engines or if they determined they were going to ditch, they could go directly to applying the Ditching procedure.

Mr. Parisis stated that along with the FCOM and QRH, the FCTM had a lot of useful information and explanation of these procedures.

Interview ended at 1005.